

Gremlins – Faces in the Forest

Deep in the Amazon jungle live monkeys so small they can fit right in the palm of your hand, and so strange looking that they inspired the bizarre creatures in the movie, *Gremlins*. Our filmmakers spent 3 years searching for the real gremlins. We'll travel with them on their incredible journey, guided by a remote forest tribe, the Satari Maway Indians. And we'll witness an amazing discovery- a species of primate never before seen by the outside world.

In a remote South American rainforest, young Indian men perform an ancient ceremony, handed down from generation to generation. Their traditions, their way of live, are intertwined with the wild creatures of the rainforest. The Satari Maway Indians tell a tale of miniature monkeys, the reincarnations of their own children, these mysterious primates are the tiny gremlins of the Amazon jungle. The Amazon rainforest, one of the last great wildernesses on earth. Today, there are still pristine uncharted areas where adventurous souls can explore primeval worlds. In September 1993 wildlife filmmaker Nick Gordon and scientists Mark Van Ruswellen set out for the rainforests of Brazil.

“We wanted to search the forest area south of the Amazon river, where the Satari Maway Indians live. Somewhere in there with them were the smallest family of monkeys in the world, the marmosets, and more than anything we wanted to see the most unusual of them- the tiny golden tassel-ear marmosets. Even today most of the area is unexplored, and we really had no idea what we would find.”

Mark and Nick spent 3 years on a quest: searching for marmosets and getting to know one particular family of the monkeys. What they found has been hidden from the outside world, until now. The marmosets here live in a world surrounded by water. As the mighty Amazon divides into smaller rivers and creeks it cuts through the jungle, separating it into isolated patches. Giant otters are masters of the Amazon's waterways. Webbed feet, sleek bodies and flattened tails enable them to travel with grace and ease through these murky waters. They are superb fisherman, exploring the great bounty of food the Amazon provides. Though they are clumsy on land, they often head to the riverbank to eat. Jaguars usually hunt on land but they are also good swimmers, and will use the rivers to fish for a meal or to cross to the forest on the other shore. Marmosets may not be able to swim, but they are experts at navigating through a tangled maze of branches and vines: the forest's roads and freeways. Snakes have the same travel plans, though on a much slower time schedule. It's late afternoon and this family of golden white tassel-ear marmosets is looking for a place to spend the night. This hole is already taken by a kinkajou, a relative of the raccoon. The marmosets call to warn each other to keep away. Marmosets have a variety of calls in their repertoire. High pitched contact calls keep them in touch with the rest of the group, as they travel through the dense jungle. This female is heavily pregnant and having difficulty travelling. She checks out another hole and decides to enter. She is about to give birth so she is very careful about selecting a safe nest site for the night. Her mate will be with her throughout labour and will even help her during the birth, a behaviour unique to marmosets. He settles down immediately but she is restless and in pain. At first the contractions come every 5 minutes. Her mate may seem uninterested but that will soon change. After about 40 minutes the contractions come quickly- every few seconds. Her first baby appears, weighting less than an ounce, as light as a feather. She isn't finished yet. Marmosets usually give birth to twins. At this

stage, with one baby in her arms and another to go, the female is especially vulnerable to predators. It's a tropical screech owl hunting for hawk moths. No threat to the new marmoset family. The second baby is born a few minutes after the first. Though the infants are tiny, the size of a mouse, the birth was extremely difficult for the female. The twins together weigh about 20% of her weight, the equivalent of a human mother giving birth to 2 15 pound babies. While the female cleans the babies it is the father's job to act as midwife and cut the umbilical cords by chewing them off. Then he eats the placenta. The babies are born with their eyes closed, but tomorrow at first light they will be introduced to their rainforest home. The family emerges just after dawn, and the adults immediately begin to scent mark, using secretions from their chest and genital glands combined with strong smelling urine. This chemical communication is vital for recognizing individuals and marking their travel routes through the forest. For the first few hours, the twins cling tenaciously to their mothers' fur. The father grooms his mate, which strengthens their bond, but right now he has something else on his mind. He wants to hold one of the babies. But she's not ready to part with them yet. Marmosets have a very unusual lifestyle. They live in extended families but only one couple, the dominant pair, produces young. It is believed the dominant female secretes chemicals that suppress ovulation in the other females. For marmosets, childcare is a family affair. All members become helpers for the dominant pair. Prevented from having their own offspring, everyone pitches in to help raise their young relatives. The mother needs all the help she can get. Carrying and feeding twins will put an enormous strain on her own health. Finally the father is allowed to hold one of the babies. From this moment on he will play a major role in helping to raise his offspring, a very rare behaviour among primates. For the first few weeks the babies are passed from one adult to another and only return to the mother for nursing. She has no trouble finding volunteers, everyone wants their turn. The younger members of the family are especially curious about the newcomers, and eager to get their hands on them, but they often lack experience. This female has never held a newborn baby before. The infant expertly hangs onto fur, and clearly this female doesn't like the feeling. No matter how hard she tries, the baby won't let go, but cries of distress attract the parents, who come to the rescue.

Marmosets are perfectly adapted to an arboreal life in the towering giants of the rainforest, 10 stories above the forest floor, but they are not alone in their expertise. Weighing in at about 30 pounds, woolly monkeys are about forty times the size of their diminutive relatives. Unlike marmosets they have prehensile tails which gives them an added advantage when feeding or just hanging out. Like most primates, these monkeys give birth to a single infant. This one is about 24 hours old. There are no helper monkeys in woolly society. He will be totally dependent on his mother for the first two years of his life. The males do carry the babies around from time to time but this mother is not ready to let the newborn out of her sight.

It's late afternoon and the marmosets are heading for their evening hideaway. The entire family of these squirrel sized monkeys can spend the night huddled together in a single tree hole. As the creatures of the day settle down for the night, those of the dark emerge. A marquay begins its evening foray in the jungle, in search of a meal. Though it's a small carnivore, about the size of a domestic cat, it is an efficient predator. Its hunting ground is not limited to the forest floor. This agile feline is a skilful tree climber, using its flexible feet to hang on in a labyrinth of vines and branches. It feeds on smaller mammals, including marmosets. The hunter has picked up a scent outside a hollow tree. It follows the scent trail to one of the marmoset family's regular holes, but

no one is home tonight. While some prey hide from the hunters of the night, others rely upon camouflage to avoid detection, but the margay has exceptional night vision. The marmosets are safe in one of their cozy nest holes. They rarely use the same sleeping place two nights in a row, a strategy that lets them stay one step ahead of their enemies. Shortly after dawn, the family is already on the move; they are hungry and stop for breakfast in a fruiting tree. They are also particularly fond of insects and are constantly on the lookout for them. Youngsters must learn which are delicious protein snacks and which are poisonous and better left alone. The twins are growing rapidly and are becoming quite a heavy load for the adults to carry around. Encouraging independence isn't always easy- sometimes a little persuasion is necessary. At this stage mom is providing less milk and the other adults are responsible for making sure the twins are getting enough to eat. Young marmosets use a special call to beg for food and make it perfectly clear what they want. If the adults simply don't feel like sharing, stealing works just as well. When an adult wants to share, it holds the food at arm's length, a signal to the infant. Whether they invite the youngsters for a bite or they get accosted during a meal, the adults usually don't put up much of a fight. Food sharing is an essential part of childcare in marmoset society.

The abundance of insects in the rainforest provides food for many of the residents, such as the toucan, although it prefers to forage for fruit. Toucans have enormous beaks that allow them to reach fruit at the tips of small branches while remaining on a larger perch. They digest the small fleshy pulp then regurgitate the hard seeds. The marmosets also love these guarana fruits, but they don't swallow the seeds. They simply chew the pulp off with their needle sharp teeth. Fruit makes up 2/3 of their diet, but marmosets are omnivores, exploiting the great diversity of life in the Amazon forest. This snake is not poisonous, but it can bite. The marmoset immediately attacks the head, killing it quickly. The youngsters won't be able to hunt for themselves until they are about a year old. As soon as they realize that someone in the family has captured prey they rush in and start begging. These two refuse to share a meal, and a tug of war develops. The stumps of rotting trees are a favourite haunt of the marmoset family. Decomposing wood is the perfect place to find centipedes and the giant grubs of beetles. The youngsters emit alarm calls but the adults know that these insects will make a good meal, as long as they are careful with the sharp pinchers on their head. The trick is to bite the head and disarm it. Though marmosets spend most of their lives in the trees, they will come down to the forest floor to capture prey. Here is a world of hidden surprises under every leaf. These tiny monkeys are extremely vulnerable to predators on the ground and any unusual sounds send them flying back into the trees. But this time the intruder is no threat to the family. This is a baby tapir camouflaged with a pattern of stripes that it will lose as it gets older. Tapirs, relatives of the horse, are strict vegetarians. They are usually found near water which they will use to escape from predators or to feast on aquatic plants. Another forest resident, the jaguarondi, is out searching for prey. Unlike the marquay, this cat restricts its hunt to the forest floor, under the watchful eye of a green vine snake. The rainforest botanical skyscrapers provide a bounty of food that stretches from the ground floor to the forest canopy 300 ft high. These magnificent blue and yellow macaws enjoy an afternoon feast, opening palm nuts with their powerful beaks.

Far below, the marmosets have returned to the floor to hunt for insects, but the family is not alone here. Perfectly camouflaged among the fallen leaves, a silent hunter is on the move. Boa constrictors are one of the marmoset's most deadly predators. Though the family has many eyes to watch out for danger, they are preoccupied with their own hunt. Boas are not venomous, but

kill swiftly with constriction. In a society of helpers, each member has an integral role to play, and this was a great loss for the marmoset family. The boa can easily capture and swallow prey the size of a dog, but it doesn't pass up the opportunity to catch smaller animals, when it has the chance. It will take 3 or 4 days to digest its meal. Everything, even teeth and bones, will dissolve.

In a rainforest it seems that every inch of living material can be exploited in many ways. Tree sap is a resin that helps heal wounds by sealing them. These stingless bees have come to collect the bright red gum of a visnia trees to use as cement in their nest. They carry the sticky excess baggage on their hind legs. Sap may contain important minerals and proteins that some animals like to feed on. Spider monkeys usually forage for fruit using their long tail like an extra arm to help propel them through the treetops, but this soga gum is a real treat they can't resist. Some trees are injured accidentally by fallen branches. Others bear the scars of intentional damage. Marmosets gouge deep holes into the trunks to start the flow of the sugary gum. They have claws instead of nails and their lower incisors are elongated forming efficient chisel-like tools. They visit regular gouging sites and mark their ownership of trees with their strong scented urine. No other monkeys in the world are as specialized for this type of feeding as are marmosets. Starting at about 6 weeks old the infants learn to lick up the gum from holes created by the older members of the family. Eventually they will be able to satisfy their sweet tooth all by themselves. This ability to exploit saps and gums enables the marmosets to find food even when fruit is scarce.

Close relatives of the marmosets, the tamarins, also feed on sap and gum but they cannot gouge out wood to obtain it. They lack the marmosets' highly adapted teeth. Some tamarins have found another way to obtain the sticky supply of energy from the parkari tree. The parkari tree relies on animals to disperse its seeds which hang on pods from the canopy. To prevent the seeds from falling to the ground before some animal has the chance to eat them, the parkari has evolved the perfect solution: glue. It may be glue for the parkari but it's a tasty snack for the tamarin. They just hang around the tree until the pods open, then they simply lick up the treat like secretion. The gum will hold the seeds in place for another three weeks. The large woolly monkeys also love the gum. They eat the seeds as well which is just the kind of help the tree needs. The seeds will pass through the woollys' systems unharmed and will be dispersed far away from the parent tree. Though there are many tiny monkeys in the Amazon rainforest, the pygmy marmoset is the smallest monkey in the world. Small enough to fit in the palm of your hand, they only weigh about four ounces. Just like their larger relatives they also have specialized teeth for gouging trees. When the marmosets have had their fill a tamarin takes advantage of their hard work and licks up a free meal.

When the tributaries of the Amazon separated the forest, they also separated the marmosets. Over time, different species have evolved on opposite sides of the water. Nick and Mark believe there were other species of marmosets in the area. But they needed help to find them. "Having found the gold and while marmosets to the north of the Abakia river we wanted to cross to the other side and explore further. We believe that another marmoset, a black and white tassel-ear, lived in the same forest." They travel to a village of the Satari Maway Indians, hoping to get some answers. "But first, there are always the formalities to respect, and there are some unexpected ones this time- a snack of leafcutter ants." "As we began to question the men, at first we were confused." In addition to the gold and whites they had studied, and the black and white

tassel-ears they hoped to find, he was telling them about a species they had never even heard of. “We showed him some drawings and he confirmed that he knew of three different species in the region. But as he talked we realised that one of them didn’t match up with our drawings. He was telling us about a marmoset with naked ears.” All the known marmosets in that region have hairy or tufted ears. “It became clear to us that any search for this mysterious marmoset would have to begin in this area. We knew we would have to return.”

Before searching for this strange new monkey, Mark and Nick set out to find the black and white marmosets. It was the wet season and Nick could no longer venture out with his camera on foot. Travelling through the flooded forest is an entirely different experience. The waters transform the jungle into a world where terrestrial and aquatic life are brought together for up to 7 months out of the year. Moving in a small boat, Nick now floats 30ft above the forest floor. A black collared hawk takes advantage of the new supply of the fish who come here to spawn. Anhingas hunt underwater for fish and other prey. Their plumage is not water repellent which means they must frequently take time out to sunbathe. Nick finds many distractions in this watery forest, now bustling with an enormous variety of creatures that come and go with the floods each year. Nick finds a good position to start filming. He’s built a small hide right on the boat to keep him out of sight. It’s small and cramped but it serves the purpose. A three toed sloth makes its way from one feeding tree to the next in its own style. This mother keeps her baby’s head above water by carrying it piggyback.

Nick and Mark finally found the black and white marmosets in the east of the Satari Maway territory. Their lifestyle and behaviour is identical to their golden white relatives. These twins are about 4 weeks old and are being encouraged by their parents to become more independent. In the rainforest a watering hole can be found 100ft above the forest floor, in the hollow of a tree where rainwater collects. The sloth may be able to swim, but it’s designed for a life in the trees. Slowly it joins its neighbour in the treetops. Neither a competitor nor a predator of the marmosets, each pays little attention to the other as they go about their own business. Marmosets on the move are a noisy bunch, as each member calls out their location. These babies are just beginning to explore on their own. Alone on the forest floor an infant calls out, unaware of the danger that lurks only a few feet away: a giant tarantula, the largest spider in the world. It’s almost as big as an adult marmoset and could easily kill this infant. The parents call to their baby who scampers out of harm’s way, using its father’s tail as an escape ladder. Before heading back to the village Nick and Mark returned for one last check on the gold and white family. This morning the family is relaxing and grooming each other. The infants, now 9 weeks old, are too big to be given a free ride. Soon they will be weaned and will have to start finding food for themselves. In the rainforest, food comes in all shapes and sizes. Scolopendra is a huge centipede with 20 pairs of legs and jaws that are not only powerful but highly venomous. Most predators won’t even attempt to capture it but the marmosets know how to disarm it. After just a few bites it’s on its last legs. Marmoset families have small territories which they scent mark to declare their ownership; they will defend these territories vigorously if an intruder from another territory crosses the boundary. When an intruder comes too close they first use body language as a warning to keep away. They do everything they can, using aggressive calls, tail thrashing and facial threats to make the message clear and to try and avoid conflict. But if the intruder does cross the territory line, the family attacks its face and head. Their chisel like teeth can inflict terrible wounds, and on rare occasions, fatal ones.

Nick and Mark have returned to the territory of the Satari Maway Indians to search for the marmoset species they have been told about. Their arrival coincides with what must be one of the most painful initiation ceremonies practised today: the dance of the tucandera. These are tucandera ants. Not only do they possess large biting pinchers but their tails possess an extremely painful sting. The Indians collect about 200 of these ants and then drug them with water mixed with cashew tree leaves. The ants are stunned and appear dead. They remain this way for about half an hour. Enough time to weave them into a glove made of palm leaves. Not surprisingly, they come back to life bristling with anger. It's not the ants' pinchers that are of concern, though. It's the powerful sting in their tails. The glove is now lined with them. The chosen initiates, young men with their hands dyed black, must prove themselves by enduring the stings of these furious ants for up to 10 minutes without showing their pain. They have proven their bravery but they will suffer excruciating agony and grossly swollen hands for days afterwards.

Mark and Nick realised that these Indians held the key to the whereabouts of the mysterious marmosets with the naked ears. "We knew the Satari Indians kept marmosets as pets, but what we stumbled upon that afternoon was a huge surprise. Black tail, naked ears." They found one of these marmosets right in the village, a pet of the women and children." They wear them on their heads, where the monkeys spend hours grooming their hair. The Satari Maway men agreed to guide Nick and Mark to a group of these marmosets. Marmosets have small territories and are faithful to them. It wasn't long before they heard the familiar high pitched contact calls of a group. But their calls are cryptic, bird-like at times. This along with their tiny size made it hard to pinpoint their exact location in the jungle. Then they spotted it: the marmosets with the naked ears. This was an incredible moment: the discovery of a new species. This is the first time anyone, apart from the Satari Indians, had seen them. Today discovering a new primate species is extremely rare and magical.

But even greater luck awaited them. The female was about to give birth. After an hour of labour, the twins are delivered. The babies head is no bigger than its mother's hand. Nick and Mark never expected that their journey would result in a finding of this magnitude. Their discovery of a new primate is a symbol of the great wealth of unknown treasures still hidden in the tropical rainforests. The outside world has named this new species the Satari Maway marmoset, out of respect to the Indians who, of course, have always known about it.

The Satari Maways tell a fairy tale to their children. It's about an old man that would cast a magic spell on them if they were disobedient. After they died, they would return to the forest as the tiny monkeys and live forever up in the trees. Though many marmosets are in danger of extinction due to the destruction of the rainforest, those families living in this remote wilderness are safe, at least for now. We can only hope that these gremlins of the Amazon jungle will also live forever, up in the trees.